BE 159: Signal Transduction and Mechanics in Morphogenesis

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Questions to consider: Soroldoni, et al., "A Doppler effect in embryonic pattern formation"

Following are some questions that it will be helpful to understand when reading the paper. They are definitely not exhaustive, but useful to help you understand the motivation of the work and the experimental protocols.

1. What challenges have there been historically in analyzing the wavefront model?

2. Why do the experimenters acquire a z-stack of images?

3. What is a kymograph and why is it useful?

4. What is the difference between independent replicates and different embryos?

5. Why do the authors use wavelets in their analysis? What benefits does a wavelet analysis bring?

6. What is meant by "scaling" of the wave pattern, and how is it ruled out?

7. Do you have any ideas about what might cause the dynamic wavelength effect?

8. What are the issues with using the average phase map?

9. What further questions does this paper raise?